

Introduction To Modern Optics Dover Publications

From the Semi-classical Approach to Quantized Light
 Electromagnetic Theory of Propagation, Interference and Diffraction of Light
 The Physics of Light, Vision, and Color
 Fourier Optics
 Mathematics of Classical and Quantum Physics
 Electromagnetic Vibrations, Waves, and Radiation
 Concepts, Optical Elements, and Techniques
 Mathematics and the Physical World
 The Theory of Heat Radiation
 The Light Fantastic
 Principles of Optics
 Fundamentals of Quantum Optics
 Modern Optics
 Almost All about Waves
 Random Vibrations
 Physical Optics
 Electromagnetic Wave Propagation, Radiation, and Scattering
 Introduction to Matrix Methods in Optics
 Principles of Optics
 From Fundamentals to Applications
 Nonlinear Optics of Photonic Crystals and Meta-Materials
 An Introduction
 Introduction to Optics
 An Introduction to Practical Laboratory Optics
 Optical Resonance and Two-Level Atoms
 Basic Optics and Optical Instruments
 Introduction to Light
 Introduction to Quantum Optics
 Introduction to Modern Optics for Students in Engineering and Applied Science
 Schaum's Outline of Optics
 Introduction to Statistical Optics
 An Introduction
 The History of Sexuality
 Physics of Light and Optics (Black & White)
 Optics and Optical Instruments
 Principles of Electrodynamics
 Optics
 An Introduction to Theory and Applications of Quantum Mechanics
 Geometry and Light

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ADRIENNE AGUIRRE

From the Semi-classical Approach to Quantized Light Courier Corporation
 Authoritative introduction covers the role of Green's function in mathematical physics, essential differences between spatial and time filters, fundamental relations of paraxial optics, and effects of aberration terms on image formation. "An excellent book; well-organized, and well-written." — Journal of the Optical Society of America. 80 illustrations. 1963 edition.
 Cambridge University Press
 Directed toward physicists and engineers interested in the device applications enabled by nonlinear optics, this text is suitable for advanced undergraduates and graduate students. Its content is presented entirely on a classical basis and requires only an elementary knowledge of quantum mechanics. The authors demonstrate how real laboratory situations can diverge from ideal theory, acquainting readers with the kinds of problems common to construction of a nonlinear device. They also offer a detailed discussion of the practical problems and characteristics of nonlinear materials, as well as the selection procedures necessary to ensure the use of good material. Their treatment begins with an introduction to the theories of linear and nonlinear optics, along with the basic ideas behind them. Succeeding chapters explore phase matching and nonlinear materials, followed by detailed treatments of second-harmonic generation, parametric up-conversion, and optical parametric amplification and oscillation. Appendixes offer a comprehensive list of materials and their properties; the text concludes with references and an index.
Electromagnetic Theory of Propagation, Interference and Diffraction of Light Courier Corporation
 The book describes the features that vibrations and waves of all sorts have in common and includes examples of mechanical, acoustical, and optical manifestations of these phenomena that unite various parts of physics. The main emphasis, however, is on the oscillatory aspects of the electromagnetic field—that is, on the vibrations, waves, radiation, and the interaction of electromagnetic waves with matter. This text was developed over a five-year period during which its authors were teaching the subject. It is the culmination of successful editions of class notes and preliminary texts prepared for their one-semester course at MIT designed for sophomores majoring in physics but taken by students from other departments as well. The book describes the features that vibrations and waves of all sorts have in common and includes examples of mechanical, acoustical, and optical manifestations of these phenomena that unite various parts of physics. The main emphasis, however, is on the oscillatory

aspects of the electromagnetic field—that is, on the vibrations, waves, radiation, and the interaction of electromagnetic waves with matter. The content is designed primarily for the use of second or third year students of physics who have had a semester of mechanics and a semester of electricity and magnetism. The aim throughout is to provide a mathematically unsophisticated treatment of the subject, but one that stresses modern applications of the principles involved. Descriptions of devices that embody such principles—such as seismometers, magnetrons, thermo-nuclear fusion experimental configurations, and lasers—are introduced at appropriate points in the text to illustrate the theoretical concepts. Many illustrations from astrophysics are also included.

The Physics of Light, Vision, and Color MIT Press
 Classic detailed treatment for practical designer. Fundamental concepts, systematic study and design of all types of optical systems. Reader can then design simpler optical systems without aid. Part Two of Two.

Fourier Optics Courier Corporation
 Aimed at students taking practical laboratory courses in experimental optics, this book helps readers to understand the components within optical instruments. Topics covered range from the operation of lenses and mirrors to the laws which govern the design, layout and working of optical instruments.
Mathematics of Classical and Quantum Physics Courier Corporation

Designed as a training manual for Navy personnel (Opticalman 3 & 2), this book provides thorough coverage of the basic theory of optics and its applications. Newly revised and updated, it presents the subject matter with extraordinary clarity, stressing theory and application equally. It will serve admirably to supplement a course in which only one of these factors is emphasized. The book begins with an introduction to the Opticalman rating. It then goes on to discuss the characteristics of light, with special emphasis on wavelengths, reflection, and refraction. Two chapters contain a detailed discussion of the formation of images by mirrors, lenses, and prisms; these explain how images are formed by thin and thick lenses, how to use the lens formula, and how to determine the location of an image formed by an optical instrument. The mechanical construction, maintenance procedures, and machining operations of basic optical instruments are explained in detail, supplemented by chapters on maintenance procedures, basic instrument repair, machine shop practices, optical and navigation equipment maintenance, night vision sights and sunsights and submarine periscopes. A helpful four-part appendix includes a glossary, common formulae used in optical repair and machine operations, prefixes and symbols used in the metric system, and English and metric system units of measurement, with common equivalents and conversions. Profusely illustrated

with 370 charts, diagrams, photographs, and drawings of tools and parts of instruments ? including cross-sections that reveal inner workings ? this manual is especially clear and well-organized. Although designed for use in U.S. Naval training schools, it can be used to great advantage as a basic text in optics in standard technical schools, and it will be immensely valuable even to the layman who desires a knowledge of the fundamentals of optics.

Electromagnetic Vibrations, Waves, and Radiation Tata McGraw-Hill Education

This textbook provides a sound foundation in physical optics by covering key concepts in a rigorous but accessible manner. Propagation of electromagnetic waves is examined from multiple perspectives, with explanation of which viewpoints and methods are best suited to different situations. After an introduction to the theory of electromagnetism, reflection, refraction, and dispersion, topics such as geometrical optics, interference, diffraction, coherence, laser beams, polarization, crystallography, and anisotropy are closely examined. Optical elements, including lenses, mirrors, prisms, classical and Fabry-Perot interferometers, resonant cavities, multilayer dielectric structures, interference and spatial filters, diffraction gratings, polarizers, and birefringent plates, are treated in depth. The coverage also encompasses such seldom-covered topics as modeling of general astigmatism via 4x4 matrices, FFT-based numerical methods, and bianisotropy, with a relativistic treatment of optical activity and the Faraday and Fresnel-Fizeau effects. Finally, the history of optics is discussed.

Concepts, Optical Elements, and Techniques John Wiley & Sons
 This graduate-level text surveys the fundamentals of quantum optics, including the quantum theory of partial coherence and the nature of the relations between classical and quantum theories of coherence. 1968 edition.

Mathematics and the Physical World John Wiley & Sons
 Stimulating account of development of mathematics from arithmetic, algebra, geometry and trigonometry, to calculus, differential equations, and non-Euclidean geometries. Also describes how math is used in optics, astronomy, and other phenomena.

The Theory of Heat Radiation Cambridge University Press
 A concise introduction to lens design, including the fundamental theory, concepts, methods and tools used in the field. Covering all the essential concepts and providing suggestions for further reading at the end of each chapter, this book is an essential resource for graduate students working in optics and photonics.

The Light Fantastic Courier Corporation
 The study of dark matter, in both astrophysics and particle physics, has emerged as one of the most active and exciting topics of research in recent years. This book reviews the history

behind the discovery of missing mass (or unseen mass) in the Universe, and ties this into the proposed extensions to the Standard Model of Particle Physics (such as Supersymmetry), which were being proposed within the same time frame. This book is written as an introduction to these problems at the forefront of astrophysics and particle physics, with the goal of conveying the physics of dark matter to beginning undergraduate majors in scientific fields. The book goes on to describe existing and upcoming experiments and techniques, which will be used to detect dark matter either directly or indirectly.

Principles of Optics Courier Corporation

This thorough and self-contained introduction to modern optics covers, in full, the three components: ray optics, wave optics and quantum optics. Examples of modern applications in the current century are used extensively.

Fundamentals of Quantum Optics Courier Corporation

Designed for a nonmathematical undergraduate optics course addressed to art majors, this four-part treatment discusses the nature and manipulation of light, vision, and color. Questions at the end of each chapter help test comprehension of material, which is almost completely presented in a nonmathematical manner. 170 black-and-white illustrations. 1983 edition.

Modern Optics Courier Corporation

The most comprehensive text and reference available on the study of random vibrations, this book was designed for graduate students and mechanical, structural, and aerospace engineers. In addition to coverage of background topics in probability, statistics, and random processes, it develops methods for analyzing and controlling random vibrations. 1995 edition.

Almost All about Waves Cambridge University Press

A complete basic undergraduate course in modern optics for students in physics, technology, and engineering. The first half deals with classical physical optics; the second, quantum nature

of light. Solutions.

Random Vibrations Courier Corporation

Modern Optics is a fundamental study of the principles of optics using a rigorous physical approach based on Maxwell's Equations. The treatment provides the mathematical foundations needed to understand a number of applications such as laser optics, fiber optics and medical imaging covered in an engineering curriculum as well as the traditional topics covered in a physics based course in optics. In addition to treating the fundamentals in optical science, the student is given an exposure to actual optics engineering problems such as paraxial matrix optics, aberrations with experimental examples, Fourier transform optics (Fresnel-Kirchhoff formulation), Gaussian waves, thin films, photonic crystals, surface plasmons, and fiber optics. Through its many pictures, figures, and diagrams, the text provides a good physical insight into the topics covered. The course content can be modified to reflect the interests of the instructor as well as the student, through the selection of optional material provided in appendixes.

Physical Optics Dover Books on Physics

Covering a number of important subjects in quantum optics, this textbook is an excellent introduction for advanced undergraduate and beginning graduate students, familiarizing readers with the basic concepts and formalism as well as the most recent advances. The first part of the textbook covers the semi-classical approach where matter is quantized, but light is not. It describes significant phenomena in quantum optics, including the principles of lasers. The second part is devoted to the full quantum description of light and its interaction with matter, covering topics such as spontaneous emission, and classical and non-classical states of light. An overview of photon entanglement and applications to quantum information is also given. In the third part, non-linear optics and laser cooling of atoms are presented,

where using both approaches allows for a comprehensive description. Each chapter describes basic concepts in detail, and more specific concepts and phenomena are presented in 'complements'.

Electromagnetic Wave Propagation, Radiation, and Scattering Cambridge University Press

Introduction to Modern Optics Courier Corporation

Introduction to Matrix Methods in Optics Courier Corporation

Introduction to Optics is now available in a re-issued edition from Cambridge University Press. Designed to offer a comprehensive and engaging introduction to intermediate and upper level undergraduate physics and engineering students, this text also allows instructors to select specialized content to suit individual curricular needs and goals. Specific features of the text, in terms of coverage beyond traditional areas, include extensive use of matrices in dealing with ray tracing, polarization, and multiple thin-film interference; three chapters devoted to lasers; a separate chapter on the optics of the eye; and individual chapters on holography, coherence, fiber optics, interferometry, Fourier optics, nonlinear optics, and Fresnel equations.

Principles of Optics Morgan & Claypool Publishers

Principles of Optics: Electromagnetic Theory of Propagation, Interference and Diffraction of Light, Sixth Edition covers optical phenomenon that can be treated with Maxwell's phenomenological theory. The book is comprised of 14 chapters that discuss various topics about optics, such as geometrical theories, image forming instruments, and optics of metals and crystals. The text covers the elements of the theories of interference, interferometers, and diffraction. The book tackles several behaviors of light, including its diffraction when exposed to ultrasonic waves. The selection will be most useful to researchers whose work involves understanding the behavior of light.